

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of claims:

1. (Currently Amended) A computer-implemented method for processing rules comprising:  
accepting a rules base comprising a plurality of rules, each rule including a condition that includes one or more condition elements for application of the rule, at least some of the conditions including multiple condition elements, wherein each of the rules comprises a rule bit vector and each condition element is associated with a single bit in the rule bit vector; and processing the rules base to form a data structure in a computing system, each rule being associated with a corresponding different portion of the data structure, each corresponding portion representing the condition for the rule and including storage locations for holding values of the condition elements of the condition for said rule, wherein the storage locations for holding values of the condition elements comprise bits of a selection bit vector with each condition element being associated with a different bit position in the selection bit vector.
2. (Canceled)
3. (Original) The method of claim 1 further comprising:  
processing a plurality of facts, including evaluating condition elements that depend on the facts, and storing results of evaluating the condition elements in the storage locations for holding the values of the condition elements.

4. (Original) The method of claim 1 wherein the data structure links each fact to corresponding condition elements that depend on that fact.
5. (Original) The method of claim 4 further comprising processing a plurality of facts, including determining applicable rules of the plurality of rules based on the accepted facts by identifying condition elements that depend on the accepted facts using the data structure.
6. (Original) The method of claim 1 wherein the data structure includes for each of the plurality of rules data values corresponding to the storage locations for the values of the condition elements, said data values representing a logical combination of condition elements.
7. (Original) The method of claim 6 further comprising:  
identifying applicable ones of the plurality of rules using the data values representing the logical combination of the condition elements and values stored in the storage locations for storing values of the condition elements.
8. (Currently Amended) A system for processing a rules base comprising:  
a data structure formed using a rules base that includes a plurality of rules, each rule including a condition that includes one or more condition element for application of the rule, at least some of the conditions including multiple condition elements, each rule of the rules base being associated with a corresponding portion of the data structure, each corresponding different portion representing the condition for the rule and including storage locations for holding values of the condition elements of the condition for said rule, wherein the storage locations for holding values of the condition

elements comprise bits of a selection bit vector with each condition element being associated with a different bit position in the selection bit vector; and

a compiler for processing the rules base, the rules base comprising a plurality of rules, each rule including a condition that includes one or more condition element for application of the rule, at least some of the conditions including multiple condition elements, wherein each of the rules comprises a rule bit vector and each condition element is associated with a single bit in the rule bit vector.

9. (Currently Amended) A rules processing system comprising:
  - a data structure formed using a rules base that includes a plurality of rules, each rule including a condition that includes one or more condition element for application of the rule, at least some of the conditions including multiple condition elements, each rule being associated with a corresponding different portion of the data structure, each corresponding portion representing the condition for the rule and including storage locations for holding values of condition elements of the condition for said rule, wherein the storage locations for holding values of the condition elements comprise bits of a selection bit vector with each condition element being associated with a different bit position in the selection bit vector; and
  - a rules processing engine coupled to the data structure for operation according to the rules base, wherein each of the rules comprises a rule bit vector and each condition element is associated with a single bit in the rule bit vector.

10. (Currently Amended) A data structure embodied in a computer-readable medium for use in rules processing comprising:
  - storage locations for values associated with conditions for a plurality of rules in a rules base, wherein the rules base comprises a plurality of rules, each rule

including a condition that includes one or more condition element for application of the rule, at least some of the conditions including multiple condition elements;

wherein each rule is associated with a corresponding bit vector structure of the data structure, each bit vector corresponding portion representing the condition for the rule and including storage locations for holding values of the condition elements of the condition for said rule, wherein the storage locations comprise bits of a bit vector with each condition element being associated with a different bit position in the bit vector.

11. (Currently Amended) Software comprising instructions embodied in a computer-readable medium for causing a computer system to:

accept a rules base comprising a plurality of rules, each rule including a condition that includes one or more condition element for application of the rule, at least some of the conditions including multiple condition elements; and process the rules base to form a data structure, each rule being associated with a corresponding portion of the data structure, the corresponding portion representing the condition for the rule and including storage locations for holding values of the condition elements of the condition for said rule, wherein each condition element is represented by a single bit in the storage locations.

12. (New) A method for processing rules comprising:

accepting a rules table comprising a plurality of rule bit vectors, each rule bit vector including one or more condition elements, each condition element being associated with a single bit in the rule bit vector;  
accepting a selection table comprising a plurality of bit vector entries including one or more bits, each bit vector entry being associated with a rule bit vector in the rules table and each of the one or more condition elements in

the rule bit vector being associated with a single bit in the bit vector entry;  
and  
comparing a particular rule bit vector in the rules table with an associated bit  
vector entry in the selection table.

13. (New) The method of claim 12, further comprising:  
accepting a condition element table that includes condition element entries  
corresponding to condition elements of the rule bit vectors, each condition  
element entry comprising a single bit value and one or more pointers to  
bits of the bit vector entries associated with the condition element.
14. (New) The method of claim 13, further comprising:  
accepting a feature table that comprises entries associated with identifiers or  
attributes, the entries being associated with one or more pointers to one or  
more condition elements that depend on a value of the entry;  
receiving a change to one or more of the entries included in the feature table;  
updating one or more of the condition element entries in the condition element  
table based on the change to the one or more entries included in the feature  
table; and  
updating the bit vector entries in the selection table based on the updated one or  
more condition element entries.
15. (New) The method of claim 12, wherein accepting the selection  
table comprises processing the rules table to generate the selection table.
16. (New) A system for processing a rules base comprising:  
a rules data structure comprising entries associated with rules, each rule including  
a condition that includes one or more condition elements;  
a condition element data structure comprising one entry for each condition

element used in a condition of one or more rules;  
a feature table data structure including entries associated with one or more  
condition elements that depend on the entries; and  
a selection data structure comprising entries corresponding to each entry in the  
rules data structure.

17. (New) The system of claim 16, wherein the entries in the rules data structure comprise rule bit vectors comprising one or more bits, each condition element for a rule being associated with a single bit in the rule bit vector.

18. (New) The system of claim 16, wherein the selection data structure comprises a plurality of bit vector entries including one or more bits, each bit vector entry being associated with a rule bit vector in the rules table and including a single bit associated with each of the one or more condition elements in the rule bit vector.

19. (New) The system of claim 16, wherein the condition element table comprises condition element entries corresponding to condition elements of the rule bit vectors in the rules table, each condition element entry comprising a single bit value and one or more pointers to bits of the bit vector entries associated with the condition element.

20. (New) The system of claim 16, wherein the feature table comprises entries associated with identifiers or attributes, the entries being associated with one or more pointers to one or more condition elements that depend on the value of the entry.